

### REMARKS

The specification has been amended on pages 2 and 8 to correct grammatical errors.

Claims 3-6, 9-10, and 20-24 have been canceled without prejudice or disclaimer. Claims 1, 2, 7, 11-13 and 17 have been amended, and claims 25 and 26 have been added. New claims 25 and 26 have been added and relate to the use of the invention in connection with Bluetooth technology. This is specifically discussed in the last line of page 6 of the application, and on page 11 at the fifth line from the bottom of the page. The application now includes claims 1, 2, 7, 8, 11-19 and 25-26.

Claim 13 has been amended to delete "and the like". Therefore, withdrawal of the rejection lodged under 35 U.S.C. 112, is requested.

Claims 1-6, 9-12, 14, 16-18, and 20-24 have been rejected as being anticipated by Japanese Patent Application JP 2000-092700 to Akane. Claims 7 and 8 were rejected as being obvious over Akane in view of U.S. Patent 6,122,524 to Goerke. Claims 13, 15 and 19 were rejected as being obvious over Akane. Each of these rejections is traversed in view of the amendments above and remarks below.

For the Examiner's convenience, attached to this amendment is a computer generated Japanese to English translation of the Akane reference which was copied from the Internet site of the Japanese Patent Office. Please note that this is a "machine" generated translation.

The mobile communication device as amended has first and second wireless sections 3 and 5 intermittently power-controlled by the power control section 5. The first wireless section 3 is operable as a portable telephone and performs indirect radio communication with a network while the second wireless section 5 performs direct communication with an external device using the Bluetooth technology. The intermittent power control of the second wireless section is in synchronism with a change between waiting and busy states (see Figure 3 and page 9-10 of the application).

In contrast, Akane neither teaches nor discloses that the intermittent power control of the second wireless section is synchronized by a change between waiting and busy states as is set forth in Claim 1 and 11 (this condition not being found in sections 0039, 0044 or 0045 referenced by the Examiner). Moreover, there is no teaching of using the Bluetooth technology in Akane as is set forth in claims 25 and 26.

In addition, Akane never discloses the first and second wireless communication having individual power sources (see claims 2 and 12), and thus, the Examiner's conclusion that Akane teaches two power sources appears to be simply incorrect. Further, section 0055 referred to by the Examiner corresponds to Figure 9 of the Akane reference.

Although Goerke (US patent 6,122,524) teaches that the mobile device 1 has a plurality of buttons 13 directed to different modes of operation in which only one service mode is selected at one time, any of the buttons 13 is for indirect radio communication with a network and not for direct data communication. This is because the SAT, GSM, DCS and PDC buttons signify satellite communication, GSM communication, DCS communication and PDC communication, respectively.

Unlike Goerke, applicant's first key switch is for the first wireless section which carries out indirect radio communication as portable telephone and second key switch is for the second wireless section which carries out direct data communication with an external device.

Moreover, Goerke does not make up for any of the deficiencies of Akane. Thus, no combination of Goerke and Akane would make the claims obvious.

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 1, 2, 7, 8, 11-19, 25 and 26 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041 (Whitham, Curtis & Christofferson, P.C.).

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael E. Whitham', written over a horizontal line.

Michael E. Whitham  
Reg. No. 32,635

Whitham, Curtis & Christofferson, P.C.  
11491 Sunset Hills Road, Suite 340  
Reston, VA 20190

Tel. (703) 787-9400  
Fax. (703) 787-7557

Customer No.: 30743

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-092700

(43)Date of publication of application : 31.03.2000

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(51)Int.Cl. H02J 1/00  
H04Q 7/38

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(21)Application number : 10-272477 (71)Applicant : CANON INC

(22)Date of filing : 10.09.1998 (72)Inventor : YOKOTA AKANE

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(54) RADIO COMMUNICATION APPARATUS AND SYSTEM THEREFOR

(57)Abstract:

PROBLEM TO BE SOLVED: To reduce power consumption of a master device while preventing reduction in operability by intermittently receiving signals from a slave station when any call is not transmitted from the public telephone network with a first intermittent reception interval, and also intermittently receiving signals when a call is transmitted, the signal from the slave station with a second intermittent interval until the response is received after transmission of call is notified to the slave station.

SOLUTION: A master device 101 and a slave device 102 are connected using a radio link. When signal transmission and reception is not performed for the predetermined period between the master device 101 and the slave device 102 via the radio link, namely when traffics of originating and terminating calls is rather low, the intermittent reception interval T of the master device 101 is set to a comparatively longer intermittent reception interval T2. Moreover, when signal transmission and reception is performed between the master device 101 and the slave device 102 within the predetermined period, namely when traffics of originating and terminating calls is

high, the intermittent reception interval  $T$  is set to the comparatively short reception interval  $T_1$ . Namely, since the intermittent reception interval  $T$  is changed depending on the radio link traffic between the master device 101 and the slave device 102, drop in the operability can be prevented and power consumption of the control device can also be lowered.

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CLAIMS  
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[Claim(s)]

[Claim 1] In the radio communication equipment which consists of a main phone connected to a public correspondence network through a wireless circuit, and a cordless handset connected with said main phone by different wireless circuit from said wireless circuit said main phone The 1st receiving means which performs intermittent reception actuation which receives the signal from said cordless handset intermittently at intervals of the 1st intermittent reception when there is no arrival from said public correspondence network, A notice means to notify said arrival to said cordless handset when there is arrival from said public correspondence network, The radio communication equipment characterized by having the 2nd receiving means which performs intermittent reception actuation which receives the signal from said cordless handset intermittently at intervals of the 2nd intermittent reception until it receives the response from said cordless handset after the notice by said means of communications.

[Claim 2] Said main phone is a radio communication equipment according to claim 1 characterized by having a blind means to suspend actuation of said 1st and 2nd receiving means after receiving the response from said cordless handset.

[Claim 3] Said 1st intermittent receiving spacing is a radio communication equipment according to claim 1 or 2 characterized by being spacing longer than said 2nd intermittent receiving spacing.

[Claim 4] Said main phone is the radio communication equipment of claim 1-3 characterized by having the 1st radio control means for connecting with said public correspondence network, and the 2nd radio control means for communicating with said

cordless handset given in any 1 term.

[Claim 5] Said main phone is the radio communication equipment of claim 1-4 characterized by consisting of the radio control section which performs the communication link with the subscriber telephone connected with said public correspondence network through said wireless circuit, and the cordless handset connected to the signal input/output terminal prepared in said subscriber telephone given in any 1 term.

[Claim 6] The radio between said main phones and said cordless handsets is the radio communication equipment of claim 1-5 characterized by being carried out using a feeble electric wave given in any 1 term.

[Claim 7] The radio between said main phones and said cordless handsets is the radio communication equipment of claim 1-5 characterized by using a specific power-saving electric wave given in any 1 term.

[Claim 8] The radio between said main phones and said cordless handsets is the radio communication equipment of claim 1-5 characterized by being carried out by adopting a spectrum diffusion method given in any 1 term.

[Claim 9] The radio between said main phones and said cordless handsets is the radio communication equipment of claim 1-5 characterized by being carried out using infrared radiation given in any 1 term.

[Claim 10] In the radio approach of the radio communication equipment which consists of a main phone connected to a public correspondence network through a wireless circuit, and a cordless handset connected with said main phone by different wireless circuit from said wireless circuit When there is no arrival from said public correspondence network to said main phone, at intervals of the 1st intermittent reception When the signal from said cordless handset is intermittently received in said main phone and there is arrival from said public correspondence network to said main phone said cordless handset -- receiving -- said arrival -- notifying -- the account of back to front of said notice -- the radio approach characterized by receiving the signal from said cordless handset intermittently in said main phone at intervals of the 2nd intermittent reception until the response to said main phone from a cordless handset is received.

[Claim 11] It is the radio approach according to claim 10 characterized by stopping intermittent reception at said 1st and 2nd intermittent receiving spacing in said main phone after receiving the response from said cordless handset.

[Claim 12] Said 1st intermittent receiving spacing is the radio approach according to claim 10 or 11 characterized by being spacing longer than said 2nd intermittent

receiving spacing.

[Claim 13] Said main phone is the radio approach of claim 10-12 characterized by consisting of the radio control section which performs the communication link with the subscriber telephone connected with said public correspondence network through said wireless circuit, and the cordless handset connected to the signal input/output terminal prepared in said subscriber telephone given in any 1 term.

[Claim 14] The radio between said main phones and said cordless handsets is the radio approach of claim 10-13 characterized by being carried out using a feeble electric wave given in any 1 term.

[Claim 15] The radio between said main phones and said cordless handsets is the radio approach of claim 10-13 characterized by using a specific power-saving electric wave given in any 1 term.

[Claim 16] The radio between said main phones and said cordless handsets is the radio approach of claim 10-13 characterized by being carried out by adopting a spectrum diffusion method given in any 1 term.

[Claim 17] The radio between said main phones and said cordless handsets is the radio approach of claim 10-13 characterized by being carried out using infrared radiation given in any 1 term.

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[Translation done.]



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DETAILED DESCRIPTION  
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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the radio communication equipment and the radio approach of consisting of a main phone connected to a public correspondence network especially through a wireless circuit, and a cordless handset connected to a main phone by different wireless circuit from said wireless circuit about a radio communication equipment and the radio approach.

[0002]

[Description of the Prior Art] When performing data communication etc. conventionally using the data station and radio communications systems, such as cellular system and a personal handicap phon system (PHS), of a computer, personal digital assistant equipment, a digital camera, a digital camcorder, etc., the technique of making cable connection of the wireless terminal unit connected to a public network and the data station using a cable was common.

[0003] However, according to the above-mentioned Prior art, in order to have to make cable connection of a data station and the wireless terminal unit using a cable etc., the data station and the wireless terminal unit had to be mostly held to homotopic, and there was a trouble that operability fell.

[0004] The technique of connecting between the wireless terminal units (main phone) which connect the cordless handset which has a radio function in a data station as a solution of this problem, and are connected to this cordless handset and a public correspondence network by the wireless circuit is also already devised. According to this technique, a main phone can be communicated even if it is in a data station and

the distant location, and it can prevent the fall of operability.

[0005]

[Problem(s) to be Solved by the Invention] However, according to the above-mentioned configuration, a main phone must transmit and receive transmission and reception of a radio signal with a public correspondence network, and a radio signal with a cordless handset. Although the main phone performed intermittent reception to each of a public correspondence network and a cordless handset and low-powerization was attained, when there is arrival of the mail from that spacing of intermittent reception is fixed, and a public correspondence network, in order to suspend the intermittent reception actuation which was being performed to each of a public correspondence network and a cordless handset, there was a problem that the further low-powerizing was difficult.

[0006] It is characterized by offering the radio communication equipment and the radio approach of attaining further low-powerization while this invention was made in order to solve the above-mentioned trouble, and it prevents the fall of operability.

[0007]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the radio communication equipment of claim 1 In the radio communication equipment which consists of a main phone connected to a public correspondence network through a wireless circuit, and a cordless handset connected with said main phone by different wireless circuit from said wireless circuit said main phone The 1st receiving means which performs intermittent reception actuation which receives the signal from said cordless handset intermittently at intervals of the 1st intermittent reception when there is no arrival from said public correspondence network, A notice means to notify said arrival to said cordless handset when there is arrival from said public correspondence network, It is characterized by having the 2nd receiving means which performs intermittent reception actuation which receives the signal from said cordless handset intermittently at intervals of the 2nd intermittent reception after the notice by said means of communications until it receives the response from said cordless handset.

[0008] The radio communication equipment of claim 2 is characterized by equipping it with a blind means to suspend actuation of said 1st and 2nd receiving means, after said main phone receives the response from said cordless handset in the radio communication equipment of the claim 1 above-mentioned publication.

[0009] The radio communication equipment of claim 3 is characterized by said 1st intermittent receiving spacing being spacing longer than said 2nd intermittent receiving spacing in a radio communication equipment above-mentioned claim 1 or

given in two.

[0010] The radio communication equipment of claim 4 is characterized by equipping said main phone with the 1st radio control means for connecting with said public correspondence network, and the 2nd radio control means for communicating with said cordless handset in the radio communication equipment of claim 1-3 given in any 1 term.

[0011] The radio communication equipment of claim 5 is characterized by said main phone consisting of the radio control section which performs the communication link with the subscriber telephone connected with said public correspondence network through said wireless circuit, and the cordless handset connected to the signal input/output terminal prepared in said subscriber telephone in the radio communication equipment of above-mentioned claim 1-4 given in any 1 term.

[0012] The radio communication equipment of claim 6 is characterized by performing radio between said main phones and said cordless handsets using a feeble electric wave in the radio communication equipment of above-mentioned claim 1-5 given in any 1 term.

[0013] Radio between said main phones and said cordless handsets is characterized by using a specific power-saving electric wave for the radio communication equipment of claim 7 in the radio communication equipment of above-mentioned claim 1-5 given in any 1 term.

[0014] The radio communication equipment of claim 8 is characterized by using a spectrum diffusion method for the radio between said main phones and said cordless handsets, and performing it in the radio communication equipment of above-mentioned claim 1-5 given in any 1 term.

[0015] The radio communication equipment of claim 9 is characterized by performing radio between said main phones and said cordless handsets using infrared radiation in the radio communication equipment of above-mentioned claim 1-5 given in any 1 term.

[0016] In the radio approach of a radio communication equipment that the radio approach of claim 10 consists of a main phone connected to a public correspondence network through a wireless circuit, and a cordless handset connected with said main phone by different wireless circuit from said wireless circuit When there is no arrival from said public correspondence network to said main phone, at intervals of the 1st intermittent reception When the signal from said cordless handset is intermittently received in said main phone and there is arrival from said public correspondence network to said main phone It is characterized by receiving the signal from said cordless handset intermittently in said main phone at intervals of the 2nd intermittent

reception until it notifies said arrival to said cordless handset and the response to said main phone from said cordless handset is received after said notice.

[0017] In the radio approach of the claim 10 above-mentioned publication, after the radio approach of claim 11 receives the response from said cordless handset, it is characterized by stopping intermittent reception at said 1st and 2nd intermittent receiving spacing in said main phone.

[0018] The radio approach of claim 12 is characterized by said 1st intermittent receiving spacing being spacing longer than said 2nd intermittent receiving spacing in the radio approach above-mentioned claim 10 or given in 11.

[0019] The radio approach of claim 13 is characterized by said main phone consisting of the radio control section which performs the communication link with the subscriber telephone connected with said public correspondence network through said wireless circuit, and the cordless handset connected to the signal input/output terminal prepared in said subscriber telephone in the radio approach of above-mentioned claim 10-12 given in any 1 term.

[0020] The radio approach of claim 14 is characterized by performing radio between said main phones and said cordless handsets using a feeble electric wave in the radio approach of above-mentioned claim 10-13 given in any 1 term.

[0021] Radio between said main phones and said cordless handsets is characterized by the radio approach of claim 15 using a specific power-saving electric wave in the radio approach of above-mentioned claim 10-13 given in any 1 term.

[0022] The radio approach of claim 16 is characterized by using a spectrum diffusion method for the radio between said main phones and said cordless handsets, and performing it in the radio approach of above-mentioned claim 10-13 given in any 1 term.

[0023] The radio approach of claim 17 is characterized by performing radio between said main phones and said cordless handsets using infrared radiation in the radio approach of above-mentioned claim 10-13 given in any 1 term.

[0024]

[Embodiment of the Invention] Hereafter, one gestalt of operation of this invention is explained with reference to a drawing.

[0025] Drawing 1 is the system schematic diagram showing the radio structure of a system constituted using the radio communication equipment concerning this operation gestalt.

[0026] In this drawing, the main phone 101 is mutually connected to the public correspondence network 104 and the cordless handset 102 through the wireless circuit,

respectively. 103 is a data station, for example, consists of a computer, personal digital assistant equipment, a digital camera, a video camera, etc.

[0027] Drawing 2 is the block diagram showing the outline configuration of the main phone 101 which constitutes a radio communication equipment. In this drawing, the main phone 101 mainly consists of the control section 121 which controls this main phone 101, an internal timer 122, the communications department 123 which performs radio between cordless handsets 102, and the communications department 124 which performs radio between the public correspondence networks 104.

[0028] Drawing 3 is the block diagram showing the outline configuration of the cordless handset 102 which constitutes a radio communication equipment. this drawing -- setting -- a cordless handset 102 -- this -- it mainly consists of the control section 131 which controls a cordless handset 102, an internal timer 132, the communications department 133 which performs radio between main phones 101, and a connector area 134. A connector area 134 is used, when connecting a cordless handset 102 and a data station 103 and transmitting and receiving a signal. Moreover, it is also possible to constitute so that the signal line for power control may be prepared in a connector area 134 and the power source of a cordless handset 102 may be supplied from a data station.

[0029] In the above-mentioned configuration, a main phone 101 performs the public correspondence network 104 and radio using the communications department 124. Well-known systems, such as a radio communications system using PDC, PHS, and a satellite as a system for performing the communication link with the public correspondence network 104, are employable. Moreover, it is also possible to adopt the radio communications system which forms a service zone, makes wireless connection between the wireless terminal units which exist in said service zone, and offers various communication service by two or more wireless cels formed of two or more base transceiver stations connected to the wireless communication control unit through the wire net (un-illustrating).

[0030] A main phone 101 communicates with a cordless handset 102 using the communications department 123. Radio means, such as a feeble electric wave, a specific smallness power electric wave, and infrared radiation, can be used for the radio performed between a main phone 101 and a cordless handset 102.

[0031] With this operation gestalt, the case where the spread spectrum system which used the frequency-hopping method as a radio means between a main phone 101 and a cordless handset 102 is used is taken for an example. Drawing 4 is drawing having shown the channel configuration inside the frame in the case of adopting frequency

hopping. In this drawing, an axis of ordinate expresses a frequency, an axis of abscissa expresses time amount, and what divided time amount at a certain fixed spacing is called a base frame (Following BF and abbreviation). This drawing shows the system which uses eight base frames which have a base frame number from BF0 to BF7, and uses eight frequencies from F0 to F7. The hopping pattern of the frequency used for the part to which it has added shading among drawing transmitting and receiving the frame synchronization channel mentioned later is shown.

[0032] Moreover, suppose that the group of the frame which consists of eight base frames which both BF0 and BF7 follow is called multi-framing (MF).

[0033] Drawing 5 is drawing showing an example of the channel configuration of each base frame. In this drawing, CNT shows a frame synchronization channel, LCCH shows a logic control channel, DATA shows a data channel, and GT shows the guard time for the change of transmission and reception, or a frequency change. Each base frame from BF0 to BF7 shown in drawing 4 consists of channels shown in drawing 5, respectively. The die length of one base frame is set to 10msec(s) in this example.

[0034] In the radio communications system using the spread spectrum communication by such frequency-hopping method, a main phone 101 has the capacity to manage a frequency-hopping pattern, and transmits a frame synchronization channel according to a frequency-hopping pattern at the time of initiation of a \*\* frame. A cordless handset 102 serves as a system which follows the frame synchronization channel which acquires the frequency information to which the following frame is transmitted, and a main phone transmits while establishing frame synchronization by receiving a frame synchronization channel.

[0035] Drawing 6 is the schematic diagram having shown receiving timing in case a main phone 101 receives the signal from a cordless handset 102 in the spread spectrum system using the frequency-hopping method used between a main phone 101 and a cordless handset 102. An axis of abscissa expresses time amount and the main phone 101 shows the base frame which receives the signal from a cordless handset 102 by half tone dot meshing. Drawing 6 (a) is the schematic diagram of timing when a cordless handset 102 is communicating through a public network 104. In this case, without carrying out intermittent reception, a main phone 101 always turns ON the power source of the communications department 123, and is performing the communication link with a cordless handset 102. This condition is usually considered as reception. Drawing 6 (b) is drawing having shown an example of the receiving timing in the case of receiving the signal from a cordless handset 102 at intervals of [ T ] the intermittent reception with a short main phone 101 (this being set to T1). In this case, since the case

where the signal from a cordless handset 102 is received only with the base frame which has a specific base frame number (BF0) is taken for the example, T1 is set to 80msec(s). Drawing 6 (c) is drawing having shown an example of the receiving timing in the case of receiving the signal from a cordless handset 102 at intervals of [ T ] the intermittent reception with a long main phone 101 (this being set to T2). In the case of this example, since the case where the signal from a cordless handset 102 is received to 2 multi-framing once (base frame which has a specific base frame number in the odd-numbered multi-framing in case of the case of drawing 6 (c)) is taken for the example, T2 is set to 160msec(s).

[0036] Drawing 7 and drawing 8 are flow charts which show the communication control procedure performed in a main phone 101. The program for realizing this flow chart is memorized by memory 125, and is performed by the control section 121.

[0037] If a power source is turned on (step S300), from memory 125, a main phone 101 will read the initial value TINI of intermittent receiving spacing in radio with a cordless handset 102, and will set the intermittent receiving spacing T as TINI (step S301). And the set-up intermittent receiving spacing T (= TINI) is notified to a cordless handset 102 (step S302). With this operation gestalt, it considers as TINI=T1.

[0038] A main phone 101 distinguishes whether it is the timing which receives the signal from a cordless handset 102 based on the flag which shows the condition of the value and main phone 101 of a timer 122, or a cordless handset 102 (step S303). Processing of step S303 is repeated until it is distinguished by this distinction that it is receiving timing, when it is not receiving timing.

[0039] It distinguishes whether by distinction of step S303, when it was receiving timing, turned ON the power source for reception, the drive of the communications department 123 was made to start (step S304), and the communications department 123 received the signal from a cordless handset 102 (step S305).

[0040] By distinction of step S305, it distinguishes whether when the signal from a cordless handset 102 is received, the received signal is a control signal (step S306), and when it is a control signal, predetermined system-information registration processing is performed (step S307). Moreover, it distinguishes whether the signal received when it was not a control signal is the response (call-in response) to the call origination or the call in from a cordless handset 102 (step S308), and when it is call origination or a call-in response, the current intermittent receiving spacing T is memorized, a receive state is usually considered as reception, and call origination or call-in processing is performed (step S309).

[0041] Then, step S310 is repeated until it distinguishes having distinguished and (step

S310) cut whether the communication link with the public correspondence network 104 cut. Moreover, when the communication link with the public correspondence network 104 is cut by distinction of step S310, the intermittent receiving spacing T of the local station before a main phone 101 starts a communication link distinguishes whether it is short as compared with the long intermittent receiving spacing T2 (step S311). When the intermittent receiving spacing T is T2, the intermittent receiving spacing T is set as the short intermittent receiving spacing T1 (step S312), and the set-up intermittent receiving spacing T (= T1) is notified to a cordless handset 102 (step S330). And the power source for reception is turned OFF (step S331), and processing of step S303 is performed again.

[0042] Moreover, when it distinguishes that the intermittent time of delivery T is T1 at step S311, step S330 is processed as it is.

[0043] By distinction of step S308, when the received signal is not call origination or a call in response, either, processing of step S311 is performed after other processings according to the input signal (step S313).

[0044] On the other hand, by distinction of step S305, when the signal from a cordless handset 102 is not received at all, with reference to the value of a timer 122, it distinguishes whether there were call origination from a cordless handset 102 and a call in from the public correspondence network 104 to a main phone 101 for a predetermined period (step S320). By this distinction, when call origination or a call in occurs, processing of step S311 mentioned above is performed.

[0045] In step S320, when there is neither call origination nor a call in [ predetermined time ], the intermittent receiving spacing T distinguishes whether it is short as compared with the long intermittent receiving spacing T2 (step S321). Here, the intermittent receiving spacing T notifies the intermittent receiving spacing T (= T2) to which it was set as T2 ( $T2 > T1$ ) in the case of T1 [ shorter than T2 ] (step S322), and it set the intermittent receiving spacing T in the above-mentioned step S330 to a cordless handset 102.

[0046] Moreover, when it distinguishes that the intermittent receiving spacing T is T2 at step S321, processing of the above-mentioned step S331 is performed as it is.

[0047] In addition, although this operation gestalt explained in the spread spectrum system which used frequency hopping taking the case of the case where intermittent receiving spacing is set to 80msec(s) and 160msec(s), intermittent receiving spacing is not restricted to these.

[0048] Moreover, although this operation gestalt explained taking the case of the case where the spread spectrum system which used the frequency-hopping method as a



radio method between a main phone 101 and a cordless handset 102 is used, communication modes other than this may be used for the radio method between a main phone 101 and a cordless handset 102.

[0049] Furthermore, with this operation gestalt, although the initial intermittent receiving spacing  $T_{INI}$  of the power up of a main phone 101 was explained taking the case of the case of being equal to  $T_1$ , the value of  $T_{INI}$  is not restricted to  $T_1$ . By making  $T_{INI}$  smaller than  $T_1$ , even when a main phone 101 is started, the count which fails in reception of the signal from a cordless handset 102 can be reduced.

[0050] As explained above, according to this operation gestalt, a main phone 101 and a cordless handset 102 are connected using a wireless circuit. When transmission and reception of the signal through a wireless circuit are not performed for a predetermined period between a main phone 101 and a cordless handset 102 (i.e., when there is little arrival-and-departure call traffic), the intermittent receiving spacing  $T$  of a main phone 101 is set as the comparatively long intermittent receiving spacing  $T_2$ . When transmission and reception of a signal are performed between a main phone 101 and a cordless handset 102 within a predetermined period (i.e., when there is much arrival-and-departure call traffic), it is set as the intermittent receiving spacing  $T_1$  with comparatively short intermittent receiving spacing. That is, since the intermittent receiving spacing  $T$  is changed according to the wireless circuit traffic between a main phone 101 and a cordless handset 102, while preventing the fall of operability, low-power-ization of a main phone 101 can be attained.

[0051] Moreover, when it becomes intermittent receiving timing, and turning ON the power source for reception and not receiving the signal from a cordless handset 102 at all, power consumption is controlled to necessary minimum, and since it constituted like, a main phone 101 can attain low-power-ization, even if it is a case for which the power source for reception is turned OFF (steps S304 and S331) where the two communications departments 123 and 124 are made to drive.

[0052] In addition, also when the record medium which recorded the program code of the software which realizes the function of the operation gestalt mentioned above is supplied to the main phone 101 which constitutes the above-mentioned radio communication equipment and the control-section 121 grade which controls this main phone 101 reads and performs the program code stored in the record medium, it cannot be overemphasized that the purpose of this invention is attained. In this case, the program code itself read from the storage will realize this invention, and the record medium which recorded that program code constitutes this invention.

[0053] As a record medium for supplying a program code, the memory card of a hard

disk, others, for example, a floppy disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, and a non-volatile etc. can be used, for example. [ ROM / (un-illustrating) / which is built in main phone 101 the very thing ] While becoming possible to apply this invention also to the radio communication equipment which did not have a function which was mentioned above till then by using such a record medium and extending versatility, version up of equipment can also be performed easily.

[0054] Moreover, although it constituted from this operation gestalt so that the communications department 123 and the communications department 124 might be formed in a main phone 101 as shown in drawing 2 , it is also possible to constitute a main phone from a communication device which performs radio between the communication devices and the public correspondence networks 104 which perform radio between cordless handsets 102.

[0055] Drawing 9 is the system schematic diagram showing the radio structure of a system constituted using the radio communication equipment which adopted the main phone constituted in this way. As shown in this drawing, the main phone 203 consists of a communication device 201 which performs radio with a cordless handset 102, and a communication device 202 which performs radio with the public correspondence network 104. Since according to the radio communications system shown in drawing 6 the power source of a communication device 201 and a communication device 202 is turned ON and, as for in the case of the usual message, only a communication device 201 should turn ON a power source, only when using a data station 103, while being able to attain low-powerization of a main phone further, the radio communication equipment excellent in portability can be obtained.

[0056]

[Effect of the Invention] As explained above, according to claims 1 and 2, the radio communication equipment of 4, claim 10, or the radio approach of 11, said main phone When there is no arrival from said public correspondence network, intermittent reception actuation which receives the signal from said cordless handset intermittently at intervals of the 1st intermittent reception is performed. When there is arrival from said public correspondence network, said arrival is notified to said cordless handset. After said notice, since it was made to perform intermittent reception actuation which receives the signal from said cordless handset intermittently at intervals of the 2nd intermittent reception until it received the response from said cordless handset, the effectiveness that the power consumption of a main phone can be reduced is acquired, preventing the fall of operability.

[0057] According to the radio communication equipment of claim 3, or the radio approach of claim 12, since said 1st intermittent receiving spacing was made into spacing longer than said 2nd intermittent receiving spacing, the effectiveness that the power consumption of a main phone in case there is no arrival from a public correspondence network can be controlled further is acquired.

[0058] Since said main phone consists of the radio control section which performs the communication link with the subscriber telephone connected with said public correspondence network through said wireless circuit, and the cordless handset connected to the signal input/output terminal prepared in said subscriber telephone, while being able to attain low-powerization of a main phone further according to the radio communication equipment of claim 5, or the radio approach of claim 13, the effectiveness that the radio communication equipment excellent in portability can be obtained is acquired.

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[Translation done.]